



REVISED DECEMBER 2016

New SF Residential Construction Guidelines

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***For Water Meters contact UTILITY BILLING at 817-503-1020*

BUILDING INSPECTIONS
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Inspection Request Line 817-350-6321

A. INTRODUCTION

This information booklet has been prepared to provide homeowners and building contractors a brief summary of the procedures used to obtain a building permit and receive periodic inspections of construction work. Typically, many residential construction projects have similar characteristics and the procedures described in this booklet will generally apply in those situations. However, since construction practices vary, it may become necessary for the building inspector to change or modify these procedures to accommodate the wide range of building and construction techniques found in the construction industry.

This information packet is intended to be a helpful reference and does not replace any requirements specified in the codes and ordinances.

B. APPLICABLE CODES AND ORDINANCES

The City of Colleyville has adopted and enforces the following codes that are applicable to building construction activities within the corporate limits of the community.

1. International Residential Code – 2012 edition
2. International Building Code – 2012 edition
3. International Plumbing Code – 2012 edition
4. International Mechanical Code – 2012 edition
5. International Fire Code – 2012 edition
6. International Energy Conservation Code – 2015 edition
7. National Electric Code – 2014 edition

Local amendments to the above codes can be viewed on the Colleyville web site or can be obtained from the Building Inspection Department.

C. BUILDING PERMIT AND INSPECTION DEPARTMENT OFFICE HOURS

Building permit applications may be submitted during regular office hours from 8:00 a.m. to 5:00 p.m., Monday through Friday. Inspectors are generally available in the office between the hours of 7:00 a.m. to 8:00 a.m. each day. Technical questions must be directed to the inspectors during the above listed office hours. General questions and permit information may be obtained by calling the Building Inspection Department.

D. BUILDING PERMIT SUBMITTAL REQUIREMENTS

A building permit is required for new residential construction or for any renovation or addition to an existing residential structure. Building permits may be obtained from the Building Inspection Department.

No construction, including setting of forms, may begin until a building permit or grading permit has been issued.

To apply for a building permit, a complete submittal must include the following items:

1. **Application** – One (1) copy of the completed permit application indicating the names of the general, concrete, plumbing, electrical and mechanical contractors. The permit application form may be downloaded from the City of Colleyville website www.colleyville.com or is available at the Building Inspections.
2. **Site Plan** – One (1) copy of a plot plan showing all structures, existing and proposed, and where these structures are or are to be placed in relation to property lines and each other.

3. **Tree Protection Plan** – One (1) copy of a plot plan that includes:
- a) Title block with street address, legal description, date, north arrow, graphic scale, and name of person who prepared exhibit
 - b) Location of proposed new structure and/or existing structure(s), improvements, and site uses including pavement and landscaping, setbacks, easements, service locations, and setbacks dimensioned to property lines
 - c) Existing and proposed site elevations, grades, and major contours. Also include construction details of permanent grade changes around trees
 - d) Locations of trunks, canopies, and species of all existing protected trees. Detail trees that are to remain and trees to be removed. Tree removal requires a separate tree removal permit. A plus (+) character shall indicate trunk location and a concentric circle shall indicate the size and canopy configuration. All protected trees shall be assigned a unique number classification.
4. **Erosion Control Plan** – One (1) copy of a plan showing the location of all erosion control measures. This information may be shown on the plot plan. (An example of an erosion control plan is shown in Section O of this brochure).
5. **Energy Compliance Documentation** – The International Energy Conservation Code adopted by the City of Colleyville requires the submittal of documentation at time of building permit application that the proposed structure complies with the minimum energy conservation requirements. Builders can download the necessary computer software at www.energycodes.gov to perform their own energy calculations.
- Energy Compliance Inspections** - Contractors must contract with an approved third-party inspection company for the required Energy Code inspections. A certificate of compliance on the official City form must be forwarded to the Building Inspections department prior to Building Final inspection.
6. **Construction Plans** – One (1) sets of construction plans on maximum 11"X17" sheets and an electronic copy (CD or thumb drive). The construction plans shall include the following items:
- a. Floor plans with all rooms/areas labeled for their intended use.
 - b. Framing and truss plans.
 - c. Electrical plans identifying all fixtures, receptacles, and switches.
 - d. Elevation drawings showing exterior wall construction
 - e. Window and door sizes shall be identified on the floor plan or separate schedule.
 - f. Foundation drawings stamped by a professional engineer licensed by the State of Texas.
 - g. Original letter from the same engineer that designed and sealed the foundation plans stating that the foundation was designed for the soil conditions on that particular lot. The letter must also state that the foundation design criteria comply with the minimum standards required by the 2012 or 2015 International Residential Code.
 - h. Wall bracing plans designed and sealed by a professional engineer with the state of Texas.
7. **Grading/Drainage Plan** - Select from one of the two options:
- a. Submit a copy of the designed engineered grading plan for the subdivision which identifies the lot as highlighted and the building footprint is transposed with the finished floor and finished pad elevations identified
 - b. Submit an engineered grading/drainage plan for the lot sealed by your engineer of record

8. **Automatic Fire Sprinkler Systems** – (Requires a separate *Fire Permit*)

- a. Required when the total living area or conditioned space equals 6,000 square feet or greater **OR**
- b. Required when the total area under roof equals 7,500 square feet or greater.

E. PLAN REVIEW PROCEDURES

Permit applications and all accompanying documents should be submitted to the Building Inspection Department for processing. City staff will review the permit application submittal and provide written comments on the proposed construction plans, which will be returned to the applicant for correction and re-submittal. Where the construction plans do not require major corrections, city staff will complete the plan review process, calculate all applicable fees and notify the applicant that the permit is ready to be issued upon payment of the applicable fees. The goal is to complete plan reviews within 5-10 business days after submittal of the application although case workload and staffing can have a direct impact on this objective.

F. PERMIT FEES

The City of Colleyville has adopted the permit fee schedules contained in the 1997 Uniform Administrative Code and calculates permit fees based on the estimated construction value of the proposed building. In some instances, the City of Colleyville has established flat rate permit fees for certain types of construction.

The City of Colleyville Building Code states that the estimated construction value used for calculating permit fees shall not be less than the square footage construction cost listed in the most recent *Building Valuation Data* published by the International Code Council. Permit fees shall be adjusted on an annual basis for permit applications received on or after the 1st day of June using the most recent edition of the *Building Valuation Data*.

No additional plan review fee shall be charged where plans are incomplete or for reviewing a construction plan that has been previously reviewed and re-submitted with corrections. Where construction plans are changed to a new proposal or where a third plan review is necessary, an additional plan review fee is required.

G. GENERAL INSPECTION REQUIREMENTS

1. Contractors cannot request AM or PM inspections and the work shall be ready by 8:00am the day of the request. **Requests for inspections shall be made when the work is ready.** The practice of anticipating completion of work is discouraged and can result in the issuance of re-inspection fees.
2. Building permit packet must be displayed as described in Section H listed below.
3. Address numbers must be posted at all times on the job site and on temporary electrical poles with 4 inch numbers in a location that is visible from the street on each lot.
4. On-Street parking by Contractors and their employees shall not obstruct emergency vehicle access.
5. An eight-foot by eight-foot by four-foot high (8'x 8' x 4') trash container (bin) is required on the job site prior to beginning of any work. Openings in the walls of the trash container cannot be large enough to allow a two- inch (2") diameter sphere to pass through.
5. Toilet facilities are required on the job site.
6. Approved erosion control shall be installed before any construction activity commences and before the issuance of the building permit or grading permit.

7. Construction working hours are 7:00 A.M. to 6:00 P.M. Monday through Saturday. No construction is permitted on Sundays.
8. Lawn irrigation systems require a separate permit and back flow certification before final inspection.
9. A separate fence permit is required prior to any fence construction.

H. PERMIT PACKETS AND INSPECTION TAGS

Permit packets must be on the construction site at the location specified below. Inspection tags will be placed inside the permit packet by the inspector once the inspection is complete. The inspection tag must remain on the construction site with the permit packet at all times. Packet locations shall be as follows for each phase of construction:

T-Pole, Plumbing-Rough and Foundation: The permit packet must be located at the front of the form boards or on the side of the trash bin that is facing the street. The trash bin must be located within the front yard of the lot.

Sheathing, Seconds, Utilities, Building Final: The permit packet must be placed adjacent to the window closest to the front door facing the street.

I. CONSTRUCTION ACCESS/STAGING

The use of an adjacent lot for construction access or storage of materials shall require the installation of approved erosion control measures.

J. INCLEMENT WEATHER PROCEDURES

No concrete or plumbing rough inspections will be made if it has been determined that it is too wet by the Building Inspection Department. All rained out inspections must be recalled. Plumbing rough inspections may be conducted in wet weather provided that a five (5) p.s.i. air test is placed on the sewer lines and a (50) p.s.i. air test is placed on the water lines. When the inspection is requested, it must be stated that there is an air test on the rough.

No concrete inspection will be made unless the temperature is at least 38 degrees Fahrenheit and rising. All inspections cancelled due to cold weather must be recalled.

K. RE-INSPECTION FEES – must be paid before any more inspections are performed

\$75.00 RE-INSPECTION FEE may be assessed when:

1. The inspection called for is not ready when the inspector arrives;
2. No building address is clearly posted;
3. Approved plans are not on the job site available to the inspector;
4. The building is locked or work otherwise not available for inspection when called;
5. The job site is red-tagged twice for the same item;
6. The original correction tag has been removed or is not available the job site;

7. Violations exist on the property including failure to maintain erosion control, trash control or tree protection.

\$125.00 RE-INSPECTION FEE may be assessed for second and subsequent violations of the items listed above.

L. UNAUTHORIZED COVER-UP FEE

Any work concealed without first obtaining the required inspection and approval in violation of Section 109 of the IRC shall be assessed a fee of \$350.00 as established by the adopted fee schedule.

M. REQUIRED RESIDENTIAL INSPECTIONS

This section identifies the inspections required for a typical new SF residential structure and outlines the construction elements usually inspected by the inspector. Inspection requests are generally made in the sequence listed below unless there are unusual circumstances.

TEMPORARY POLE

The following items are generally required and inspected during the temporary power pole inspection:

1. Double pole/single throw breaker installed for 240 volt 20A outlet.
2. Single pole breaker installed for 120-volt outlet with 20A GFCI protection on all 120-volt receptacles.
3. Box is to be secured to the pole.
4. Pole is to be braced, secure and stable.
5. A ground rod must be installed with a ground wire that is a minimum size of #6 AWG.
6. Legible address numbers must be posted on the T-Pole. Numbers must be at least four inches (4") in height.
7. All breakers and receptacles must be clearly marked with amperage/voltage.
8. Neutral conductor shall be identified for its entire exposed length by a distinctive white marking at all terminations.

PLUMBING ROUGH-IN

1. Pipe shall be bedded in sand or approved other material that provides adequate protection
2. Hot water lines shall have minimum ½ inch insulation per Energy Code
3. Fire sprinkled structures shall have a minimum of 1 ½ inches piping that is uninterrupted (no valve) from the tap to the fire line riser.
4. Pipes passing through concrete shall allow for movement utilizing material with a minimum wall thickness of 0.025 inches.
5. Pipes passing under a footing or through a foundation wall shall be sleeved with material that is at least two pipe sizes larger than the pipe passing through the wall.
6. Waste piping shall be tested with a five-foot (5') head of water measured at the last stack in the house.

7. An air test may be substituted during wet conditions utilizing a 5 p.s.i. pressure test
8. The sewer tie-in must be exposed one foot on the back side of the tap.

ELECTRICAL INSTALLATION IN FOUNDATION

Materials and methods must comply with the 2014 National Electric Code. This inspection may be performed concurrently with the foundation inspection provided the installation is visible for the inspector.

FOUNDATION - A form survey must be approved and on file at least 24 hours before the day of the inspection request.

1. A grounding electrode conductor of bare copper of at least 20 feet and not smaller than 4 AWG shall be located horizontally within the bottom portion of the foundation footing that is in direct contact with earth, per 250.52 of the 2014 National Electric Code.
2. Structural steel reinforcing bars, when used, shall be made available for connecting to the electrical grounding electrode system, per 250.52 of the 2014 NEC.
3. Foundation plates or sill shall be treated against subterranean termites per the IRC.
4. Foundation plates or sills must be bolted to the foundation or foundation wall with no less than ½ inch nominal diameter steel bolts embedded at least 7 inches into the concrete or masonry and spaced no more than 6 feet apart. A minimum of one bolt shall be located within 12 inches of each section of sill plate. A properly sized washer and nut must be tightened on each bolt.

SHEATHING

Before any moisture barrier is applied over wood sheathing, inspection approval must be obtained. The wall bracing approval letter from the design engineer must be on file before this inspection can be performed. The moisture barrier shall not be installed until the sheathing inspection is approved.

FIRE SPRINKLER SYSTEMS (where applicable) Sprinkled structures shall have fire sprinkler system installed, inspected, and approved by the Fire Marshal or their appointee prior to Seconds inspections.

SECONDS Request for 2NDS includes framing, electric, plumbing, and mechanical trades which are inspected simultaneously. It is the general contractor's responsibility to request the inspection when **all trades are ready.** The structure shall be enclosed, roof covering installed, temporary doors set, and windows installed with fenestration stickers attached. The structure shall be free of scrap building materials and swept clean before inspection. CITY STAMPED PLANS SHALL BE ON SITE IN ORDER FOR THIS INSPECTION TO OCCUR.

FRAMING

- a. Operable windows located more than 72 inches above finished grade or surface below shall require the lowest part of the clear opening to be a minimum of 24 inches above the finished floor or the room in which the window is located.
- b. Engineered wall bracing systems shall require the design engineer's letter of compliance.

- c. Factory-built metal fireplaces and chimneys shall be installed at the time of the framing inspection and shall comply with the manufacturer's installation requirements and/or Chapter 10 of the 2012 IRC (whichever is more restrictive). The installation manual shall be provided at each unit.
- d. All stairs treads must have a maximum rise of 7 ¾ inches and a minimum run of 10 inches. The stair treads on a winding stairway shall not be less than six (6) inches on the inside of each winder and at a point twelve inches out from the inside winder, a 10" tread is required.
- e. One layer of No. 15 asphalt felt or other approved water-resistive barrier shall be installed over all exterior walls in accordance with IRC 703.2. Approved barriers shall comply with the manufacturer's installation requirements.
- f. All framing shall conform to the maximum allowed for cutting, notching, and boring.
- g. All lumber must be grade stamped. Unstamped lumber is unacceptable as a framing structural member.
- h. All penetrations in exterior sheathing and top plates must be sealed.
- i. Covered porches and patios must be inspected to verify proper structural framing prior to installing ceiling/soffit material.

ELECTRIC ROUGH

- a. Romex extending through masonry must be protected by sleeves with plastic (P.V.C.) or liquid tight flex conduit (with approved fittings).
- b. A conductor must be connected to the grounding electrode embedded in the foundation. A supplemental grounding rod must also be supplied. Clamps for grounding electrode must be accessible.
- c. Recessed luminaires installed in the building thermal envelope shall be IC-rated and sealed to limit air leakage between conditioned and unconditioned spaces.
- d. Electrical conductors in notched or bored studs that are less than 1-1/4 inches from the edge of the stud must be protected by a nail plate.
- e. All splicing of conductors shall be complete at boxes.
- f. Ground and neutral conductors shall be made up in all indoor panels at rough-in stage. Bonding jumpers and screws must also be installed at this time.

PLUMBING TOP-OUT

- a. Frost proof hose-connections with integral vacuum breakers must be installed.
- b. All water lines in unheated areas must be insulated with a minimum of ¾" pipe insulation.
- c. All vents must extend through the roof with flashings installed at the roof and at least 18-inches from any wall, at least 6-inches above the roof and at least 10 feet from or 2 feet above any opening such as a window.
- d. A top-out water test is required for all plumbing located above the first floor.
- e. A water test is required for all tubs and shower pans.
- f. Water heaters installed in a location where leakage could cause damage must have a drip pan. The pan must have a drain pipe extending to the exterior of the building which cannot be connected to the T & P valve relief piping.

GAS PIPING

- a. Gas system must be complete.
- b. A pressure test must be performed consisting of a three (3) lb. air test utilizing a six (6) lb. diaphragm gauge.
- c. CSST Gas Lines: An air test of at least sixty (60) lbs. per square inch (60 p.s.i.) on a diaphragm gauge is required for all lines prior to the regulator (piping designed to operate at 2 p.s.i. working pressure) the gauge for the 60 p.s.i. test should be located outside of the house at the gas meter connection. All lines after the regulator must have an air test of at least three lbs. on a six (6) lb. diaphragm gauge. The test must be performed on a thirty (30) pound gauge. The gauge should be located at the fireplace.
- d. Gas lines located between bricks and masonry must be factory mill wrapped or galvanized pipe.
- e. All log lighter valves must have the key installed for testing past the valve.
- f. CSST piping shall be bonded to the electrical service grounding electrode system at the point where the gas service enters the building. The bonding jumper shall not be smaller than 6 AWG copper wiring or equivalent.

MECHANICAL ROUGH

- a. Supply ducts in attics shall be insulated to a minimum of R-8. All other ducts shall be insulated to a minimum of R-6. Exception: Ducts located completely within the building thermal envelope (spray-foamed attics) OR duct requirements as part of an approved performance plan.
- b. Ducts shall be sealed with approved tapes or mastics: duct tape not permitted.
- c. A/C condenser lines require piping insulation of $\frac{3}{4}$ inch thickness or R-3.
- d. Flexible ducts shall be supported with material at least one and one-half inches (1-1/2") wide. Maximum spacing for support is four feet (4'). Some manufacturers require supports every two feet (2'). Turns must be made in such a way that the airflow is not deterred.
- e. Bath exhaust fan ducts must extend to the exterior of the building.
- f. Dryer vents are limited to a maximum length of twenty-five feet (25'). The twenty-five foot (25') length does not include transition fitting. Each 90 degree elbow fitting will reduce the maximum length of the vent by 5 feet and for every 45 degree elbow fitting used, the maximum length shall be reduced by 2.5 feet. Dryer vent connections must be taped and not screwed.
- g. Makeup air shall be provided for all exhaust hood systems capable of exhausting in excess of 400 cfm. Such makeup air system shall be equipped with a means of closure and shall be automatically controlled to start and operate simultaneously with the exhaust system. Intake openings shall be located at least 10 feet horizontally from any hazardous or noxious contaminate source OR at least 3 feet below contaminate sources where such sources are located within 10 feet of the opening. Opening sizes in louvers, grills, and screens protecting air intake openings shall be not less than $\frac{1}{4}$ inch and not greater than 1 inch.
- h. Direct vent appliances with two-pipe systems shall be installed in attic spaces where spray-applied foam is used to create a building thermal envelope OR frame a separate compartment.

FIREPLACES AND CHIMNEYS

- a. Pre-fab fireplaces shall be installed and secured to framing for the Seconds inspection. The gas line shall extend into the firebox (where applicable) and manufacturer's installation manual must be with the unit.

- b. Masonry firebox inspection is required when firebox, damper, and first flue tile are in place. Face brick shall not be installed before inspection.
- c. Minimum 2 inch air space must be maintained between masonry firebox walls and any combustible framing members.

INSULATION INSPECTION

- a. Performed by RESNET certified HERS Rater or other approved by the Building Official.
- b. All penetrations and openings in building envelope must be sealed.
- c. Seal attic and floor penetrations where MEP installations penetrate building envelope.
- d. Seal fireplace cavities where adjacent to building envelope.
- e. All windows must be installed with NFRC label attached.
- f. All batt insulation must be labeled and legible.
- g. Insulation batts installed in walls shall be totally surrounded by an enclosure on all sides consisting of framing lumber, gypsum, sheathing, wood structural paneling, or other equivalent material approved by the Building Official.
- h. Spray-foam applied insulation shall require an installer's certificate that demonstrates approved R-values for the installation.

BRICK TIES - Shall be requested concurrently with 2NDS. For brick veneer provide one tie per 3 ¼ square feet (for 16" framing one every 24" high or for 24" framing one every 16" high) unless structural engineer or architect specifies more. Moisture barrier must be applied before inspection. Install to a height of 8 feet from grade. Brick ties shall be installed and inspected for decorative masonry features around fireplaces or architectural accents such as interior walls.

STUCCO/EIFS INSPECTIONS Installer's certificate shall be on file.

Curing Requirements - the finish coat for two-coat cement plaster shall not be applied sooner than 7 days after application of the first coat. For three-coat cement plaster, the second coat shall not be applied soon than 2 days after the first coat. The third coat shall not be applied soon than 7 days after the second coat. Inspections required are:

- a. **Paper Inspection** - at framing inspection, inspector will verify two layers of Kraft grade D building paper per Section R703.6 or other approved material. Upper layer shall overlap lower a minimum of 2 inches. Horizontal joints shall overlap minimum 6 inches. Window frames shall be properly sealed and flashed.
- b. **Insulation (EIFS) Inspection** – mechanical fasteners installation shall be as required by the ICC report.
- c. **Lath Inspection** – lath and lath fasteners shall be corrosive resistant. Staples shall be spaced a maximum of 6 inches or as otherwise approved. Weep screeds shall be installed a minimum of 4 inches above grade or 2 inches above an impervious surface.

TUB ENCLOSURE - Pump motor electrical bonding (where required), wiring, and tub seal inspection is required for any whirlpool or garden tub. Access shall be provided to circulation pumps in accordance with the fixture or pump manufacturer's installation instructions. Where the manufacturer's instructions do not specify the location and minimum size of field-fabricated access openings, a 12-inch by 12-inch minimum size opening shall be installed for access to the circulation pump. Where pumps are located more than 2 feet from the access opening, an 18-inch by 18-inch minimum size opening shall be installed. A door or panel shall be permitted to close the opening. In all cases, the access opening shall be unobstructed and be of the size necessary to permit the removal and replacement of the circulation pump. IRC P2720.

ATTIC STAIRS – Rated for 300 lbs. (minimum) that serve equipment shall be installed and properly secured with lag bolts supplied by the manufacturer.

UTILITIES INSPECTION – Permanent electric and gas meters must be installed before requesting building final.

ELECTRIC METER RELEASE

- a. Electrical system must be complete with all switches and receptacle outlets installed.
- b. Electrical fixtures or equipment not installed shall require conductors be capped off with wire nuts and blank cover plates shall be placed over the outlet boxes. Cover plates are not required on outlets over 8 feet high.
- c. Overcurrent protection devices shall not be installed for equipment that is not installed. Blank covers shall be installed at such openings at electric panel.
- d. All circuits shall be specifically labeled at the electric panel with permanent marker.
- e. Service grounding electrode conductor(s) shall be accessible for inspection of connection to grounding electrode.
- f. Receptacles and switches shall be secured within approved boxes with cover plates attached. Extension of devices from walls for tile work, cabinetry, etc. is prohibited.
- g. HVAC equipment shall be identified by number at each unit as well as electric panel. Overcurrent protection sizing shall be in accordance with manufacturer's nameplate rating.
- h. Smoke and carbon monoxide detectors shall be installed at the time of inspection.

GAS METER RELEASE

- a. All gas appliances shall be installed. *EXCEPTION:* Kitchen range/oven/cooktop.
- b. All gas appliance vents shall be installed with proper clearance from combustibles.
- c. Gas system must be complete.
- d. Sediment traps shall be installed where required.
- e. Gas valves shall be installed on all gas outlets. Systems utilizing CSST shall have valves installed for each outlet at the manifold. Each outlet shall be identified using permanent marker.
- f. Three (3) lb. air test on gas system using a six (6) lb. diaphragm gauge.
- g. Gas outlets installed for future use shall have valves installed with a threaded plug.
- h. Log lighters shall be capped with key installed for testing past valve.

BUILDING FINALS (building, electrical, plumbing, mechanical finals)

1. BUILDING

- a. A permanent address must be installed with numbers of contrasting color to background and visible from the street. Address may be posted on the building or on the mailbox if located on the same lot.
- b. Street, alley and all flatwork must be clean and clear of mud and debris.
- c. Silt fencing, sod or other approved erosion control must be in place. Yard must be clear of debris and final grade completed.
- d. A solid walkway at least twenty-four inches (24") wide must be installed from attic opening to furnaces and water heaters. The distance from the opening to the equipment cannot exceed twenty feet (20'). A thirty-inch (30") working platform is also required directly in front of the equipment.
- e. Chimneys must extend at least two feet (2') above any point within ten feet (10') of the roof.
- f. A solid-core door must be installed between the garage and living area.

- g. Test on irrigation backflow device must be on file in the office.
- h. Permits for all fences and irrigation systems must be issued prior to inspection.

2. PLUMBING

- a. All gas appliances must be connected or have gas stops and caps installed. Gas connectors must not exceed three feet (3'), except for clothes dryers and ranges, which must not exceed 6 feet.
- b. All plumbing fixtures must be installed. Any drain or water line that is installed for future use or expansion must have permanent caps.
- c. Sewer cleanouts must be cut to grade and P.V.C. caps installed.
- d. Hot water must correspond to left side of fittings on plumbing fixtures.
- e. PVC vent stacks must be painted to provide protection from ultra-violet light exposure.
- f. All toilets must be caulked at the floor.
- g. Air gap fittings must be installed on all dishwashers, where required.
- h. Shower door must have a minimum opening clearance of twenty-two inches (22").

3. ELECTRICAL

- a. All receptacles must be wired properly. All light fixtures must be installed.
- b. All GFCI's must be installed and working properly.
- c. A permanent electrical outlet and light fixture controlled by a switch located at the required attic opening must be provided at or near air-conditioning and water heater equipment.
- d. All areas requiring illumination must be switched.
- e. The whirlpool tub access panel must be removed for inspection.
- f. Electrical outlets located in garages that are not GFCI protected must be single receptacles and labeled.
- g. Floor outlet receptacles must be accessible and require U. L. listed type floor boxes.

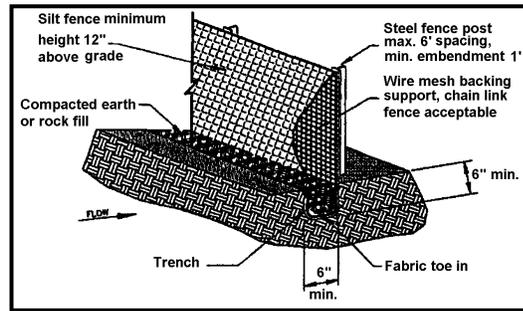
4. MECHANICAL

- a. Combustion air vents must be installed in the upper twelve inches (12") and lower twelve inches (12") of closets enclosing gas appliances. Each vent must total 100 square inches.
- b. A mechanical heating system must be operational that is capable of maintaining a temperature of 70 degree Fahrenheit at a point that is two feet above floor level.
- a. Vent fans must be operational in bath and utility rooms.

N. EROSION CONTROL MEASURES

The City of Colleyville Land Development Code requires all residential construction sites to provide erosion control measures until the site is vegetated. The erosion control measures require the installation of silt screening to prevent soil erosion at construction sites from becoming a public nuisance.

Applicants seeking a building permit, to construct building or to make an addition to an existing building are required to submit an "Erosion Control Plan" with building permit application. The building will review the Erosion Control Plan for with the regulations prior to approving the permit application.

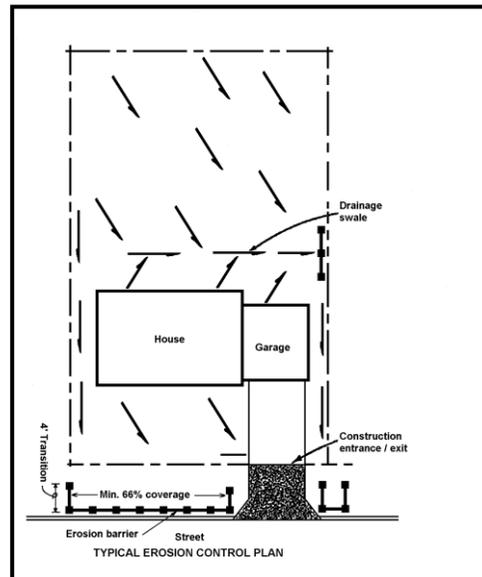


a new building, are their inspector conformance building

The silt screening shall be installed and maintained by the contractor in accordance with these requirements prior to approval of any inspection.

An Erosion Control Plan shall at a minimum contain items:

1. A site plan drawn to scale of the property where proposed showing the property boundary, any way and any drainage easement.
2. The existing drainage flow by using arrows to direction of slope.
3. The location of any existing or proposed footprint, if applicable.
4. The location and type of erosion control method
5. The location where access is gained to the



the following

earthwork is street right-of-

indicate the

building

proposed.

property.

O-99-1174,

The following is an excerpt from Ordinance Number which describes the minimum criteria for an erosion control screen.

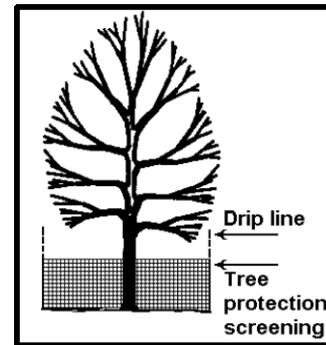
"Where required by these regulations, there shall be an erosion control barrier constructed according to these standards. The erosion control barrier shall be installed to a minimum height of twelve inches (12") with the base buried to protect from washout. Said erosion control barrier shall be placed behind any curb and extend across a minimum of 66% of the street frontage of the lot. Additional erosion control barriers may be required to provide erosion control for the entire width of the lot where required by the City Inspector, except at the access point. There shall be a four foot (4') transition section at each end of the barrier. The erosion control barrier shall provide for a minimum of one point of access, which shall be a minimum width of ten feet (10') and a maximum width of twenty feet (20'). The access point shall have a minimum of four inch (4") thick gravel base and extend a minimum of ten feet (10') from the curb. In the absence of any curb, the City Inspector shall determine the proper location of the erosion control barrier."

O. TREE PROTECTION REQUIREMENTS

The City of Colleyville Land Development Code requires all residential construction sites to provide tree protection for trees located on the lot, but outside the building pad site. Trees within the buildable area of a lot may be removed as a part of the normal construction process. All other trees on the lot having a trunk diameter of 3" or more must remain on the lot and be protected from construction activities.

The following regulations are applicable to tree protection during residential construction activities:

1. Protective Fencing – All trees shall have protective fencing the tree's drip line. The protective fencing may be comprised of orange vinyl construction fencing, chain link fence or similar fencing with a four-foot (4') approximate height. The fencing may be located within the drip line of the specimen approved construction only. The fencing shall follow the of the approved construction.



located at
of snow
other
protective
tree for
delineation

2. Bark Protection – In situations where a tree remains in the immediate area of intended construction, the tree shall be protected by enclosing the entire circumference of the tree's trunk with lumber encircled with wire or other means that does not damage the tree.
3. Construction Pruning – In a case where a low hanging limb may be broken during the course of construction, the obtrusive limb may be cut. The limb shall be cut either flush to the trunk on or at the next joint of the limb. The wound shall then be sealed with pruning paint. In no instance shall pruning involve a portion of the trunk or thirty percent (30%) of the entire canopy without the prior approval of the building inspector.
4. Improvements within the Critical Root Zone of a Tree – Design constraints often dictate that trees slated for preservation have some encroachment on their critical root zone. The following is the minimum design criteria that are allowed within the critical root zone of a tree. Development exceeding the criteria would put the tree at risk and therefore no longer be considered a preserved tree. In such a case replacement trees shall also be required.
 - a. Grade Changes – In the event that grade changes must be made around a tree or group of trees, the following should be implemented in order to maintain oxygen and water exchange within the tree's critical root zone.
 - i. A minimum of seventy-five percent (75%) of the critical root zone must be preserved at natural grade with natural ground cover or landscaping for the tree to be considered a preserved tree.
 - ii. No cut or fill greater than two inches (2") shall be located closer to the tree trunk than one half (1/2) of the radius of the critical root zone radius distance.
 - iii. Increase Grade: Provide an aeration system just outside the tree's drip line. A dry well located a minimum of one-half (1/2) of the radius of the critical root zone.
 - iv. Decrease Grade: Provide retaining walls outside the drip line to mitigate cuts.

5. Prohibited Activities – The following activities shall be prohibited within the limits of the drip line of any tree that is subject to the requirements of this Chapter.
 - a. *Material Storage* – No materials intended for use in construction or waste materials accumulated due to excavation or demolition shall be placed within the limits of the drip line of any tree.
 - b. *Equipment Cleaning / Liquid Disposal* – No equipment may be cleaned or other liquids deposited within the limits of the drip line of a tree. This would include but not be limited to, paint, oil, solvents, asphalt, concrete, mortar or other materials.
 - c. *Tree Attachments* – No signs, wires or other attachments, other than those of a protective nature shall be attached to any tree.
 - d. *Vehicular Traffic* – No vehicular and construction equipment traffic or parking is allowed within the limits of the drip line of trees.

P. DRIVEWAYS AND SIDEWALKS

CONCRETE DRIVEWAYS (from Public Works Construction Standards)

All concrete driveways shall have a minimum thickness of five inches (5") for residential driveways and six inches (6") for commercial driveways or shall match existing driveway thickness, whichever is greater. Driveways shall be composed of concrete having a minimum cement content of 5 sacks per cubic yard of concrete, 5% entrained air ($\pm 1.5\%$) and a minimum compressive strength at 28 days of 3,000 pounds per square inch. The unit bid price shall also include #4 bars on eighteen inch (18") centers both ways, with #4 smooth dowels into existing concrete paving (if applicable). All concrete shall be vibrated and an approved curing compound shall be applied to the surface. All steel shall be DOMESTIC (as per C.O.C. Item B1.13, *Standard Specification for Construction of Highway, Streets, and Bridges TxDot 1993 Item 440*).

Land Development Code Chapter 14-135

Driveway Approach Depth – The driveway shall begin at the street curb and extend to the property line or to a point nine and one-half (9.5') feet from the back of the curb, whichever is greater. The drive approach shall be constructed such that the height of the drive approach at the property ROW, with a typical nine and one-half (9.5') foot parkway, shall be two and one-half (2-1/2") inches higher than the top of the curb. The tangency point of a driveway curb shall be a minimum of ten (10') feet from a storm water inlet.

Driveway Approach Widths and Spacing – The criteria contained in Table 1 shall be the minimum and/or maximum standards to be applied in spacing and designing driveways on public streets. For the purpose of this regulation, driveway width shall be measured at the property line. The Director of Public Works may modify these standards based on anticipated traffic flow and in accordance with sound traffic engineering practices. To implement the standards contained in the following table, subdivision plats for new commercial developments shall be required to provide cross-access easements.

Driveways Crossing Bar Ditches

Culvert Size – The minimum culvert pipe size shall be 18" diameter. However, an engineered design that provides for a larger culvert pipe size may be required by the developer where the Director of Public Works determines that additional drainage capacity may be required. The ends of all culvert pipes shall be cut at a 6:1 slope.

| Driveway Spacing and Design Criteria | | | | | |
|---|-----------------------|----------------------|------|---------------------|------|
| Description | Street Classification | Residential Driveway | | Commercial Driveway | |
| | | Min. | Max. | Min. | Max. |
| Driveway Throat Width | Local | 12' | 25' | 25' | 35' |
| | Minor Coll. | 12' | 25' | 25' | 35' |
| | Major Coll. | 16' | 25' | 25' | 35' |
| | Arterial | 20' | 25' | 25' | 35' |
| Driveway Curb Radius | Local | 5' | 10' | 10' | 20' |
| | Minor Coll. | 5' | 10' | 10' | 20' |
| | Major Coll. | 10' | 10' | 10' | 20' |
| | Arterial | 15' | 15' | 20' | 30' |
| Driveway Spacing (centerline) | Local | 22' | n/a | 100' | n/a |
| | Minor Coll. | 32' | n/a | 100' | n/a |
| | Major Coll. | 80' | n/a | 150' | n/a |
| | Arterial | 100' | n/a | 250' | n/a |
| Minimum Distance from Driveway to Intersection (pi to pi) | Local | 30' | n/a | 75' | n/a |
| | Minor Coll. | 50' | n/a | 100' | n/a |
| | Major Coll. | 100' | n/a | 150' | n/a |
| | Arterial | 100' | n/a | 180' | n/a |

Table 1: Driveway Spacing and Design Criteria

Radius – Driveways shall be constructed with the return curbs joining the edge of pavement at the street with a minimum ten-foot (10') radius.

Slope – The maximum slope from the edge of driveway to the top of the culvert pipe shall be 6:1. The sloped area around the end of the culvert pipe shall be sodded or hydro-mulched to resist erosion.

Cross Slope – The minimum cross slope on the drive shall be 1/8 inch per foot. The minimum longitudinal slope between the edge of pavement at the street and the valley over the culvert pipe shall be 1/4 inch per foot.

Maintenance – Future maintenance of the drive approach and culvert pipe is the responsibility of the property owner.

Grading – During the drive approach installation, all ditch grading upstream and downstream of the proposed driveway culvert is the responsibility of the property owner.

Driveway Approaches at Pedestrian Crossings – Driveway approaches shall not be located in street intersections or at established pedestrian crossings.

Driveway Approaches at Obstructions – Driveways shall be kept at a minimum of five (5') feet away from obstructions such as street light posts, fire hydrants, traffic signals, etc.

Accumulative Width of Approaches – Driveway approaches shall not occupy more than forty (40%) percent of the frontage of a lot or tract.

CONCRETE SIDEWALKS

Minimum Sidewalk or Pathway Width – All sidewalks shall be a minimum of four (4') feet in width, except a sidewalk located within or abutting a collector street, or larger, as shown on the Master Thoroughfare Plan, which shall not be less than five (5) feet in width. All sidewalks and pathways shall be constructed in the area between the curb or grade line of the public street and the abutting property line unless the pathway is situated within a dedicated pathway easement or right-of-way. The edge of the sidewalk or pathway shall generally be parallel with the curb line and be situated no more than one (1') foot from the abutting property line. The Director of Public Works may approve a plan to alter the location of a sidewalk to preserve a tree or for aesthetic purposes. One additional foot of width shall be added to a sidewalk that abuts a street curb. The widths of all sidewalks and pathways shall be in accordance with the following table, which are further referenced in Chapter 15 – Public Works Construction Details.

| Sidewalk & Pathway Widths | |
|---------------------------|---------------|
| Classification | Minimum Width |
| Type "A" | 4.0 ft. |
| Type "B" | 5.0 ft. |
| Type "C" | 8.0 ft. |
| Type "D" | 10.0 ft. |
| Type "E" | 12.5 ft. |

- E. Construction Materials – Sidewalks shall be constructed of portland cement concrete (minimum thickness four (4") inches). Pathway system sidewalks shall be a minimum thickness of five (5") inches. Concrete for sidewalks and pathways shall be Class "A" and consist of five (5) sacks (minimum) of portland cement for each cubic yard of concrete mix and have a seven (7) day flexural strength of 500 pounds per square inch (500 p.s.i.) and twenty-eight (28) day compressive strength of 3,000 pounds per square inch (3,000 p.s.i.). Reinforcement shall be in accordance with the construction detail contained in *Chapter 15 – Public Works Construction Details*. In such cases, reinforcements shall be #3 DOMESTIC STEEL deformed reinforcing bars on eighteen (18") centers.
- F. Architectural Barriers Act – All sidewalk/street intersections shall be constructed so as to provide a ramp that complies with the Architectural Barriers Act. Barrier free ramps shall be provided for access to the street. The following specifications shall apply:
1. Ramp to be minimum four (4') feet in width.
 2. Ramp to be constructed with Class "A" concrete.
 3. Ramp concrete thickness shall be the same as the street (six (6") inch normal residential).
 4. #3 bars shall be used for reinforcement (twenty-four (24") inch on centers).
 5. Curb return shall match existing curb height of the street and taper to the connecting walk with a 1-foot radius.
 6. Street shall be blocked out (max. twelve (12") inches) and dowels installed.
 7. Saw joints shall be made one and a half (1 1/2") inch minimum depth and sealed with silicone joint sealant material.
 8. Subgrade shall be prepared to a minimum depth of six (6") inches.
 9. At no time shall the walk running parallel to the street be altered.
 10. Surface of walk shall be coarse and ribbed to provide extra traction (see detail P-8).

Where the above specifications do not apply or have jurisdiction, refer to the specifications from the American Disabilities Act.